snapscale™

Configuration Guide

December 2012

For the latest version of this document, please go to: http://www.overlandstorage.com/pdfs/SnapScale_Config_Guide.pdf

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1 Introduction

This document is intended as a guide for configuring and ordering SnapScale X2, scale-out NAS Systems, Optional cluster expansion nodes, Software and Service. It is primarily intended as a "what should be ordered with what" guide and provides an overview of the features and functionality of each of the options available. This has been designed as an "all inclusive" guide as much as possible but should not be used as a complete substitute for Datasheets and/or administration guides.

This first part of this guide (Sections 2 through 5) is divided in to the following sections:

- SnapScale X2 NAS Systems – providing an overview of available SnapScale X2 NAS Systems
- SnapScale X2 NAS Cluster Expansion – providing an overview for the SnapScale X2 cluster expansion nodes
- SnapScale X2 Software Solutions – providing an overview of RAINcloud OS™ and available software options that work with RAINcloud OS™ based SnapScale X2 NAS Systems.
- Overland Storage Services for SnapScale NAS Systems and Software – providing an overview of the service offerings available

The second part of this guide (Section 6) then provides full details on configuring a solution with the logical steps to follow (including part numbers).

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2 SnapScale X2 scale-out NAS System

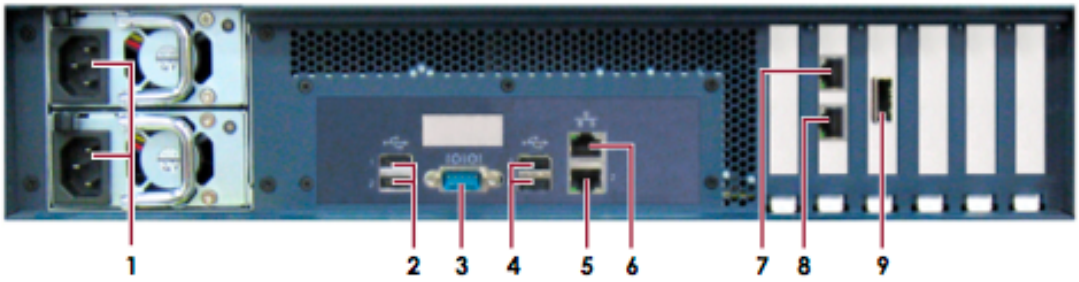
The SnapScale X2 from Overland Storage is a clustered NAS solution that solves the problems of traditional storage by enabling organizations with rapid or unpredictable data growth to scale capacity and performance infinitely without adding management complexity. Built on Overland Storage RAINcloud OS technology, SnapScale eliminates islands of storage, enabling easy and affordable scaling without having to predict capacity in advance. Offering user selectable levels of data redundancy, SnapScale writes data across multiple nodes and drives simultaneously for instant protection and high availability by ensuring no single point of failure ever exists. The SnapScale hardware architecture and "single pane of glass" management creates a consistent user experience while both managing the existing Global Namespace and scaling storage as needed, without additional layers of administration.

2.1 The SnapScale X2 scale-out NAS System

2.1.1 The SnapScale X2 1GbE Node

The SnapScale X2 node is a 2U, 12-Bay rack mount, scale-out, Network Attached Storage system. A minimum of three SnapScale X2 nodes is required to form a cluster. The X2 is sold as an three node, or two node enclosure bundle each with a 4-pack of drives, and also as a three node, or two node bundle fully loaded with drives. In addition to the 12 internal drive bays, up to 512PB total capacity can be added to the cluster with additional nodes. Each SnapScale X2 node includes 1 x processor; 8GB of Memory (2 x 4GB Memory Module); Quad Gigabit Ethernet ports; Dual power supplies; and a Slide Rail Rack Mount Kit. It supports 2-way or 3-way data redundancy for data protection. Software Included: RAINcloudOS, Snapshots, Flexible Volumes, and Quotas. The following table provides a summary of the SnapScale X2 configurations.

1Gb Ethernet	SnapScale X2 3-node bundles	SnapScale X2 2-node add-on bundles
Form Factor	6U (3 X 2U is the minimum cluster configuration)	4U (2 X 2U)
Max Raw Internal/Max Cluster Capacity	144TB/512PB	96TB/512PB
Memory	8GB/ per node	8GB/ per node
Network (Standard; Optional Add-On)	Quad 1GbE per node	Quad 1GbE per node
Power Supply	Dual Standard per node	Dual Standard per node
Expansion Port	SAS (Included for future use)	SAS (Included for future use)
Expansion Option	Add additional nodes as needed for capacity and performance	Add additional nodes as needed for capacity and performance



1 - AC Power Sockets
2 - USB 2.0 Ports
3 - Serial Port*
4 - USB 2.0 Ports
5 - Ethernet 2 Port
6 - Ethernet 1 Port
7 - Ethernet 3 Port
8 - Ethernet 4 Port
9 - SAS Card Port

* For use by Technical Support only.

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2.2 General Notes on SnapScale NAS Configurations

2.2.1 SnapScale X2 Memory Configurations

The SnapScale X2 includes 8GB (2 X 4GB) of memory standard with three additional memory slots, upgradeable to 16GB total with the optional 4GB memory modules.

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2.2.2 SnapScale X2 Networking Configurations

The SnapScale X2 includes four 1GbE networking ports (two embedded and one dual-port PCIe NIC). The two PCIe NIC SnapScale ports are used for the back-end storage network and the two embedded ports are for the front-end client network. See Figure 1 below for an example of a 3-node 1GbE cluster wiring diagram.

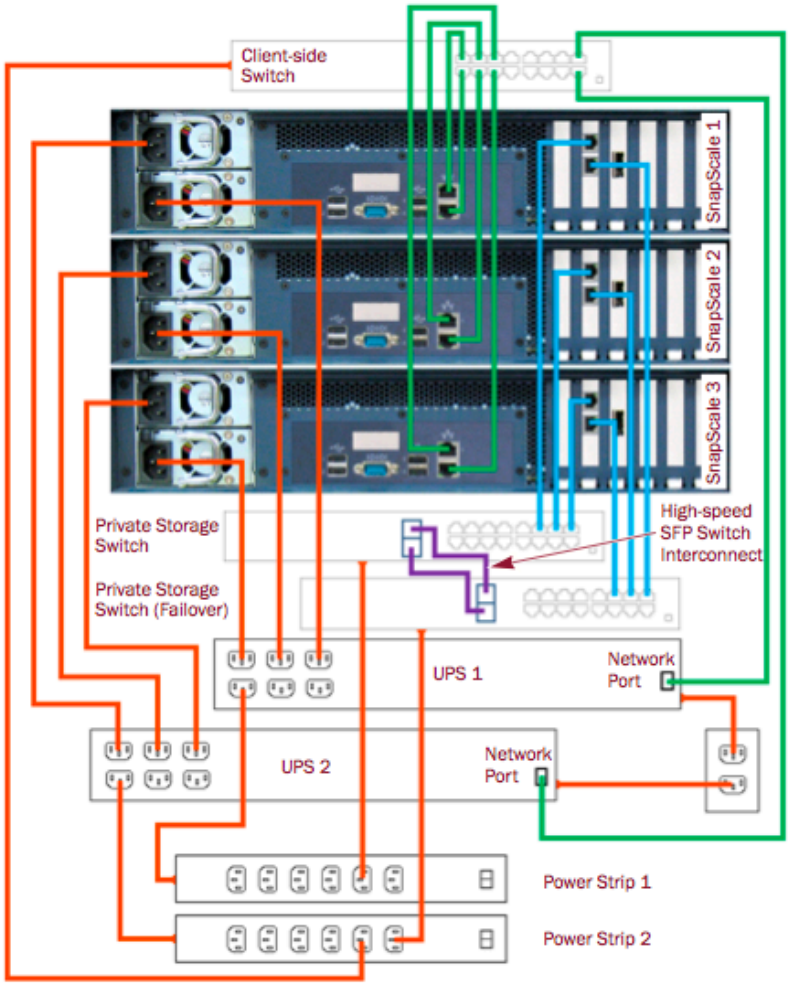

Figure 1.

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3 SnapScale X2 Cluster Configuration and Usage Details

The guidelines below provide configuration and ordering information for SnapScale X2 clusters.

3.1 SnapScale X2 Cluster Configuration

3.1.1 SnapScale X2 Cluster Configuration Overview

The minimum number of SnapScale nodes required to form a cluster is three. With an initial three node cluster, it is possible to choose either 2-way or 3-way data redundancy. 2-way redundancy will keep two copies of each file on two hard drives that exist on different nodes in a cluster and will optimize a cluster for capacity. 3-way redundancy will keep three copies of each file on three hard drives that exist on different nodes in a cluster and will optimize a cluster for maximum data protection.

Note: SnapScale X2 units are sold with drives and may contain drive slot blanks. Drives may be ordered in 4-packs or as singles. Initially, a SnapScale includes four drives or is fully populated. ***Drives used in the SnapScale X2 must be obtained from Overland Storage and have SnapScale X2 Series drive carriers.***

3.2 SnapScale X2 Cluster Expansion

3.2.1 Adding Nodes

SnapScale nodes must be added in pairs or more to an existing cluster. There must be enough drives in an existing cluster plus the new drives in the newly added nodes to accommodate the existing redundancy. For example, when adding nodes to an existing cluster, consisting of three fully loaded nodes running 3-way redundancy, a minimum of three nodes must be added to expand the cluster. Using 2-way redundancy, a minimum of two nodes can be used to expand an existing cluster. As a rule of thumb, each hard drive in each node must find matching drives in other nodes to create file redundancy. If not enough drives exist to create redundancy, then the remaining drives become global hotspares.

3.2.2 Redundancy Reconfiguration

Once the redundancy factor is selected it is a cluster-wide setting that can be decreased from 3-way to 2-way at any time. If users wish to increase the redundancy factor from 2-way to 3-way, the cluster must be deleted and reset.

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3.2.3 SnapScale 1GbE Storage Network Switches

For complete hardware redundancy, it is recommended to set up a SnapScale cluster with a minimum of two storage network (back-end) switches. Overland Storage sells the Cisco 24-port stackable switch for customers wishing to purchase a turnkey SnapScale solution. If customers wish to purchase or use other 3rd party network switches, the switch hardware must be stackable and must meet the following requirements to be compatible with a SnapScale cluster:

- 2 switches to provide fault tolerance
- Single Gigabit Ethernet interconnect between the switches
- Gigabit Ethernet ports
- Multicast v1, v2 supported
- Bandwidth of internal backplane must be greater than or equal to a total of 1Gbps per port
- Layer 2 managed switch
- Port count: clusters should endeavor to have enough ports to accommodate the entire cluster. Thus a 23 node cluster could use two 24 port switches and a 47 node cluster could be set up on two 48 port switches.

3.3 General SnapScale Configuration Notes

3.3.1 SnapScale X2 Interconnect

Each SnapScale X2 node includes a single external SAS (SFF-8088) connection for future tape library connections. The port is not used at this time.

3.3.2 SnapScale Drive Notes

The SnapScale X2 Chassis is configured with Nearline SAS hard drives. A SnapScale cluster must be configured with drives of like technology in every node.

Drive 4-Packs and Singles are specific to the SnapScale platform. When adding drives to an existing SnapScale cluster, drives must be added evenly between nodes in numbers that are a multiple of the selected redundancy factor.

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4 SnapScale X2 Software Solutions

SnapScale X2 Systems support a wide range of data sharing, data protection and replication solution software designed to be compatible with today's unstructured data computing environments.

4.1 RAINcloud OS

Every SnapScale X2 System is delivered with RAINcloud OS that combines three layers of traditional storage architectures – file system, volume manager and data protection – into one unified global namespace, creating a single intelligent file system that spans all nodes. In addition to its fully redundant storage architecture, RAINcloud OS offers seamless scalability with no downtime, centralized storage management, and a comprehensive suite of data protection tools ideal for consolidating data and simplifying management to reduce storage total cost of ownership (TCO).

4.2 Replication with Snap Enterprise Data Replicator

4.2.1 Snap Enterprise Data Replicator (Snap EDR)

Snap Enterprise Data Replicator (Snap EDR) 7.2 provides a powerful, high-performance data replication and protection solution, with a comprehensive set of data management, movement, and backup capabilities. Administrators can remotely move files between SnapScale NAS servers; replicate data from their remote offices to a central server where it can be protected with established backup and restore procedures; or automatically distribute data from a central server to multiple remote offices. With Snap EDR, the administrator can implement enterprise-wide data movement, backup, disaster recovery, and compliance operations from a single location.

Snap EDR 7.2 is an available option to RAINcloud 3.0 or greater and is licensed by functionality of Snap EDR (EDR Standard) as well as by class of platform (Workgroup, Departmental and Non-SnapServer NAS Systems). Each system participating in Snap EDR replication or backup requires a separate Snap EDR license whether it is a SnapScale X2, SnapServer NAS, Windows, Solaris, Linux or MAC OS X (10.6 or below) system.

Snap EDR 7.2 can be used to replicate data between any RAINcloud OS-powered SnapScale X2 regardless of RAINcloud OS release provided that Snap EDR is the same version for all SnapScale or SnapServers participating in the replication.

4.2.1.1 Snap Enterprise Data Replicator

4.2.1.1.1 Snap EDR Standard

Snap EDR Standard Edition includes all functionality, including remote backup, as well as one-to-one, one-to-many and many-to-one replication. Snap EDR Standard can be positioned not only for disk-based backup and disaster recovery but also for data distribution and versioned disk-based backup with the advanced backup functionality included over EDR Express.

Snap EDR Standard is licensed on a per cluster basis (not per node) for SnapScale systems as well as by client operating system (for non-SnapScale or SnapServer NAS systems) as follows:

- Snap EDR Standard – Department (Optional with the SnapScale X2 / Included with the SnapServer DX2)
- Snap EDR Standard - Windows / Mac OS X / Linux / UNIX[1]
- Snap EDR Standard - Workgroup

[1] Snap EDR 7.2 supports Solaris as the only UNIX platform. Refer to the data sheet for specific versions.

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5 OverlandCare™ Services for SnapScale Systems and Software

OverlandCare is Overland's premier service and support program. This program provides enhanced services for customers who require either longer coverage periods or options that provide for higher system availability. We offer support upgrades at the time of system sale and support extensions for up to five years after the initial system purchase. If your SnapScale solution includes multiple products each item must be covered to the same entitlement. As a special incentive to keep your SnapScale product covered for a longer period of time we offer a discount on multiple years of support coverage when purchased at the time of sale.

5.1 OverlandCare Levels

There are four levels of OverlandCare, each offering a different range of services. As mentioned above, every SnapScale carries one of these levels as its "standard warranty", and customers can purchase upgrades and extensions for up to 5 years after the initial system purchase. The four OverlandCare Levels are summarized in the table below.

	OverlandCare Level 1 NBD Advance Parts Replacement	**OverlandCare Level 2** 5x9xNBD Onsite Support	**OverlandCare Level 3** 5x9x4-Hour Onsite Support	**OverlandCare Level 4** 24x7x4-Hour Onsite Support
Unlimited Web and Email Support	•	•	•	•
Access to Online Knowledgebase	•	•	•	•
Critical Software/Firmware Updates and Patches	•	•	•	•
24x7 Telephone Assistance	•	•	•	•
Remote Problem Diagnostics & Support	•	•	•	•
Next Business Day Advance Parts Replacement	•			
Onsite Support Monday Thru Friday		•		
Next Business Day Response for Onsite Support		•	•	
4-Hour Response for Onsite Support			•	•
24x7 Onsite Support				•

5.2 Standard Warranty, Uplifts and Extensions For SnapScale Products

5.2.1 Standard Warranty

SnapScale X2 products are covered by a one-year Overland Care Level 2 warranty which covers all aspects of the product. SnapScale OverlandCare warranties are sold in 3-node or 2-node bundles. The Level 2 warranty for SnapScale X2 includes the following:

- 24x7 Telephone support
- Next business day response for onsite support
- Next business day parts replacement
- Software support for RAINcloud OS with updates and patches as available

For full details of current service programs, please refer http://support.overlandstorage.com/support/service-coverage.html

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5.2.2 Uplifts and Extensions

All SnapScale systems are eligible for service uplifts and extensions to augment and/or extend the standard OverlandCare warranty.

- Specially priced 3-year uplifts for OverlandCare Levels 3-4 are available at the time of purchase
- 1-year extensions for OverlandCare Levels 2-4 are available to extend the SnapScale warranty to 5-years of total coverage

5.3 Supplemental Software Support

Supplemental Software Support can be purchased for each optional software product. This service is offered as an annual contract for Snap Enterprise Data Replicator (Snap EDR). To purchase Supplemental Software Service, the SnapScale system in the cluster on which the software product will be run must be covered by OverlandCare service or Software maintenance.

Supplemental Software Support includes the following:

- Support offering 24x7 access to web based self-support
- Technical support access for the Software product in line with the service level of the SnapScale system on which it runs

5.4 Summary of Support Offerings for SnapScale Systems and Software

5.4.1 SnapScale X2 Support Offering Summary

The following table provides a summary of the support offerings available for SnapScale X2 systems.

<table>
<tr><th>Service Offering</th><th>Year 1</th><th>Year 2</th><th>Year 3</th><th>Year 4</th><th>Year 5</th></tr>
<tr><td>OverlandCare Level 2 – 24x7 Telephone Support, 9x5xNBD Onsite</td><td colspan="3">Standard Warranty</td><td colspan="2">Optional 1-Year Extensions</td></tr>
<tr><td>OverlandCare Level 3 – 24x7 Telephone Support, 9x5x4-Hour Onsite</td><td colspan="3" rowspan="2">Optional 3-Year Uplift</td><td colspan="2" rowspan="2">Optional 1-Year Extensions</td></tr>
<tr><td>OverlandCare Level 4 – 24x7 Telephone Support, 24x7x4-Hour Onsite</td></tr>
<tr><td>Supplemental Software Coverage for Snap EDR</td><td colspan="5">Optional 1-Year Extensions</td></tr>
</table>

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6 Purchasing Guide

6.1 SnapScale Bundles, Drives, System Specific Software

The tables below provide ordering information to configure SnapScale X2 nodes.

Following the expansion storage are additional tables for Snap EDR software specific to SnapScale X2 systems. Snap EDR Software for Non-SnapScale NAS Systems are addressed in later sections of the Purchasing Guide.

6.1.1 Configuring SnapScale X2 Solutions

The following steps can be used as guidance for configuring a SnapScale X2 solution. The minimum number of SnapScale X2 chassis required to form a cluster is three. The various 3-node and 2-node bundles below can be combined to create any number of node combinations, as long as there are three or more nodes within the cluster.

Step 1	Choose and Configure a Base SnapScale X2 Cluster System
Step 1a	**Choose a Partially Populated, 3-node SnapScale X2 1GbE system bundle** OV-SSN301004 SnapScale X2 Three Node Bundle, 24TB NL-SAS (12 X 2TB NL-SAS hard drives) OV-SSN301005 SnapScale X2 Three Node Bundle, 36TB NL-SAS (12 X 3TB NL-SAS hard drives) OV-SSN301016 SnapScale X2 Three Node Bundle, 48TB NL-SAS (12 X 4TB NL-SAS hard drives) **Choose a Fully Populated, 3-node SnapScale X2 1GbE system bundle** OV-SSN301018 SnapScale X2, Three Node Bundle, 72TB NL-SAS (36 X 2TB NL-SAS hard drives) OV-SSN301019 SnapScale X2, Three Node Bundle, 108TB NL-SAS (36 X 3TB NL-SAS hard drives) OV-SSN301020 SnapScale X2, Three Node Bundle, 144TB NL-SAS (36 X 4TB NL-SAS hard drives)
Step 1b	**Choose a Partially Populated, 2-node SnapScale X2 1GbE system bundle** OV-SSN301010 SnapScale X2 Two Node Add-on Bundle, 16TB NL-SAS (8 X 2TB NL-SAS hard drives) OV-SSN301011 SnapScale X2 Two Node Add-on Bundle, 24TB NL-SAS (8 X 3TB NL-SAS hard drives) OV-SSN301017 SnapScale X2 Two Node Add-on Bundle, 32TB (8 X 4TB NL-SAS hard drives) **Choose a Fully Populated, 2-node SnapScale X2 1GbE system bundle** OV-SSN301021 SnapScale X2 Two Node Add-on Bundle, 48TB (24 X 2TB NL-SAS hard drives) OV-SSN301022 SnapScale X2 Two Node Add-on Bundle, 72TB (24 X 3TB NL-SAS hard drives) OV-SSN301023 SnapScale X2 Two Node Add-on Bundle, 96TB (24 X 4TB NL-SAS hard drives)
Step 1c	**To populate a SnapScale X2 with internal capacity, choose up to 12 drives** Nearline SAS Drive 4-Packs (7200 RPM) OV-ACC902063 HDD - SnapScale, 2TB NL-SAS w/Carrier, 4 Pack OV-ACC902064 HDD - SnapScale, 3TB NL-SAS w/Carrier, 4 Pack OV-ACC902065 HDD - SnapScale, 4TB NL-SAS w/Carrier, 4 Pack Nearline SAS Drive Single (7200 RPM) OV-ACC902067 HDD - SnapScale, 2TB NL-SAS w/Carrier OV-ACC902068 HDD - SnapScale, 3TB NL-SAS w/Carrier OV-ACC902069 HDD - SnapScale, 4TB NL-SAS w/Carrier

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Step 2	Select the SnapScale X2 Switches
Step 2a	**Select the 1GbE back-end (storage network) switches. A minimum of two switches is required for complete hardware redundancy . 10GbE switches are not offered by Overland Storage at this time. Customers can purchase 3rd party 10GbE switches.** OV-ACC902050 ACC - 24-port Stackable 1GbE Ethernet Switch for SnapScale X2
Step 2b (Optional)	**Select the 1GbE front-end (client network) switches. Customers can use any switch for the client network or purchase the option below from Overland Storage.** OV-ACC902050 ACC - 24-port Stackable 1GbE Ethernet Switch for SnapScale X2

6.1.2 Snap EDR

Snap EDR Supports Windows, Linux, MAC OS X, and UNIX platforms in addition to SnapScale and SnapServer NAS Systems but must be licensed separately for these additional platforms.

Step 3	Add Snap EDR Software (as appropriate)
Step 3a	**Snap EDR Standard. One license is required per SnapScale cluster (not per node). A second EDR license is required for the destination/source replication which can be a SnapServer or a heterogeneous (Win/Linux/UNIX) server.** OV-SSN301015 SW - Snap EDR Cluster License, SnapScale X2 5325301879 SW - Snap EDR Standard, Department 5325301881 SW - Snap EDR Standard - Windows / Linux / Unix

6.2 SnapScale Support

6.2.1 SnapScale X2 Hardware Support Options

Support Options for SnapScale X2 NAS Systems and Software. Support options are available for all SnapScale X2 NAS Systems, and associated SnapScale software. Support, if ordered for SnapScale nodes, must all be at the same level.

Step 1	Choose support for SnapScale X2 systems as appropriate.
Step 1a	**Choose appropriate SnapScale X2 Support option** Support for up to 5 years can be obtained at the time of initial system purchase by combining appropriate single year offerings. SnapScale support is sold in 3-node or 2-node bundles. **Three Node Support Bundles** EWCAREL2U-SS3 OverlandCare Level 2 (24x7 Phone/NBD Onsite), 3-Yr. Uplift, SnapScale 3-Nodes EWCAREL2R-SS3 OverlandCare Level 2 (24x7 Phone/NBD Onsite), 1-Yr. Uplift, SnapScale 3-Nodes EWCAREL2E-SS3 OverlandCare Level 2 (24x7 Phone/NBD Onsite), 1-Yr Extension, SnapScale 3-Nodes EWCAREL3U-SS3 OverlandCare Level 3 (24x7 Phone/9x5x4-Hr Onsite), 3-Yr Uplift, SnapScale 3-Nodes EWCAREL3R-SS3 OverlandCare Level 3 (24x7 Phone/9x5x4-Hr Onsite), 1-Yr Uplift, SnapScale 3-Nodes EWCAREL3E-SS3 OverlandCare Level 3 (24x7 Phone/9x5x4-Hr Onsite), 1-Yr Extension, SnapScale 3-Nodes EWCAREL4U-SS3 OverlandCare Level 4 (24x7 Phone/24x7x4-Hr Onsite), 3-Yr Uplift, SnapScale 3-Nodes EWCAREL4R-SS3 OverlandCare Level 4 (24x7 Phone/24x7x4-Hr Onsite), 1-Yr Uplift, SnapScale 3-Nodes EWCAREL4E-SS3 OverlandCare Level 4 (24x7 Phone/24x7x4-Hr Onsite), 1-Yr Extension, SnapScale 3-Nodes

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	Two Node Support Bundles EWCAREL2U-SS2 OverlandCare Level 2 (24x7 Phone/NBD Onsite), 3-Yr. Uplift, SnapScale 2-Nodes EWCAREL2R-SS2 OverlandCare Level 2 (24x7 Phone/NBD Onsite), 1-Yr. Uplift, SnapScale 2-Nodes EWCAREL2E-SS2 OverlandCare Level 2 (24x7 Phone/NBD Onsite), 1-Yr Extension, SnapScale 2-Nodes EWCAREL3U-SS2 OverlandCare Level 3 (24x7 Phone/9x5x4-Hr Onsite), 3-Yr Uplift, SnapScale 2-Nodes EWCAREL3R-SS2 OverlandCare Level 3 (24x7 Phone/9x5x4-Hr Onsite), 1-Yr Uplift, SnapScale 2-Nodes EWCAREL3E-SS2 OverlandCare Level 3 (24x7 Phone/9x5x4-Hr Onsite), 1-Yr Extension, SnapScale 2-Nodes EWCAREL4U-SS2 OverlandCare Level 4 (24x7 Phone/24x7x4-Hr Onsite), 3-Yr Uplift, SnapScale 2-Nodes EWCAREL4R-SS2 OverlandCare Level 4 (24x7 Phone/24x7x4-Hr Onsite), 1-Yr Uplift, SnapScale 2-Nodes EWCAREL4E-SS2 OverlandCare Level 4 (24x7 Phone/24x7x4-Hr Onsite), 1-Yr Extension, SnapScale 2-Nodes **Secure Drive Exchange** EWSECURE-DD24 1 Year - SECURE DRIVE Exchange, Up to 24 drives EWSECURE-DD8 1 Year - SECURE DRIVE Exchange, Up to 8 drives

6.2.2 Supplemental Software Support Options

Supplemental Software support is offered for Snap EDR. Supplemental Software support requires the system on which they are licensed to also be supported by Overland CARE.

Supplemental Software Support for EDR is provided as a single support option regardless of the level of license (Express or Standard[2]). If Supplemental Software support is selected for Snap EDR, all licenses of Snap EDR must be covered by Supplemental Software support.

Step 1	**Choose support for Snap EDR as appropriate.**
Step 1a	**Choose appropriate Supplemental Software Support option for Snap EDR** Supplemental Software Support for Snap EDR is offered by system platform. Support for up to 5 years can be obtained at the time of initial system purchase by combining a 3-year support option with 2 of the corresponding 1-year support options. 5325302152 1-Year Supplemental, EDR, Department/DX2/X2 5325302152-3 3-Year Supplemental, EDR, Department/DX2/X2 5325302157 1-Year Supplemental, EDR, Win/Linux 5325302157-3 3-Year Supplemental, EDR, Win/Linux 5325302158 1-Year Supplemental, EDR, UNIX 5325302158-3 3-Year Supplemental, EDR, UNIX 5325302148 1-Year Supplemental, EDR 410/DX1 5325302148-3 3-Year Supplemental, EDR 410/DX1

[2] Snap EDR Advanced (which is no longer offered as a separate license) is also covered by the same Supplemental EDR support that covers Snap EDR Express or Snap EDR Standard Editions.

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About Overland Storage

Overland Storage is the trusted global provider of effortless data management and data protection solutions across the data lifecycle. By providing an integrated range of technologies and services for primary, nearline, offline, archival, and cloud data storage, Overland makes it easy and cost effective to manage different tiers of information over time. Whether distributed data is across-the-hall or across-the-globe, Overland enables companies to focus on building their business instead of worrying about data growth.

Overland SnapScale®, SnapServer®, SnapSAN™, NEO® and REO® solutions are available through a select network of value added resellers and system integrators. For more information, visit www.overlandstorage.com

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For the latest version of this document, please go to: http://www.overlandstorage.com/pdfs/SnapScale_Config_Guide.pdf

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